Quad Mapper Interface (QMI) Application API

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The Quad Mapper Interface (QMI) web application is designed to display USGS Topographical Raster data and plot points, lines and polygons while acting as an interface between other web applications.

QMI allows you to select/define a given point, line or polygon from within another web application and pass the data on to QMI for display or modification. You can then narrow your search by zooming in, zooming out and panning around a given point or area within a Quarter Million Quadrangle or Inch To Mile raster.

You can edit the point, line or polygon data passed into QMI or create your own.

If you are satisfied with the data you can then pass the finalized point, line or polygon on to a third web application.

If you are not satisfied with the data, you can return to the original web application to start over.

QMI can be initiated in three (3) different modes. Each mode will allow you different options depending on the parameters passed into the application.

The QMI web application has a number of parameters for interfacing with other web applications.

QMI URL

The following is the generic format for QMI's base address.

http://domainname:portNumber/QMI/QMI

Example:
http://www.QMIdomain:8080/QMI/QMI?quad=FAI&sourceurl=http://otherDomain/yourApp&targeturl=http://anotherDomain/yourOtherApp

QMI is based on Sun's Java Servlet technology and requires a web server that handles Java Server Pages (.jsp). QMI has been developed and tested on a stand-alone Tomcat 4.1.X server.

The port number may or may not be required depending on how the tomcat server is set up in conjunction with a web server. Tomcat uses a default port number of 8080.

General formatting protocols for QMI parameters

- All parameter names are case insensitive.
- URL parameter values are NOT case insensitive.
- All other parameter values are case insensitive.
- All parameter values must be URL encoded.
- Lat/Long values are biased towards Alaska:
  - All lat/long values should be in decimal degree format. (64.34443, -147.99384)
  - Decimal latitude values are assumed to be "North" so negative values will be changed to positive.
  - Decimal longitude values are assumed to be "West" so positive values will be changed to negative.
  - The Alaska longitudes that fall in the Eastern Hemisphere are treated as an extension of the Western Hemisphere.

QMI URL Parameters

1. Target Application URL:

- Parameter Name: targeturl
- This parameter is a QMI input parameter only.
- This URL should designate the web application that is the ultimate destination for the point, line or polygon data.
- The Target Application URL is not required. If it is missing and the sourceurl parameter is present, then QMI will return an error message to the originating application (sourceurl parameter).
- The URL can be absolute or relative.
  - If the URL is absolute, then the complete URL including the transport protocol must be included. (http://www.dnr.state.ak.us/cgi-bin/lris/landrecords)
  - If the URL is relative it must begin with a forward slash (/).
- If the target application is a Java Servlet (JSP), then an absolute URL must be used. This is because QMI has to know the port number for accessing other servlets. If your web server is using virtual hosting and does not require the port number then a relative URL could be used.

2. Originating Application URL:

- Parameter name: sourceurl
- This parameter is both an input and output parameter.
- This URL should point back to the originating web application. It is used to build the link to return to the originating web application.

- This Originating Application URL is not required. If it is missing and the targeturl parameter is present, then QMI will return an error message to an error page.
- This parameter should meet all of the same conditions as the Target Application URL parameter.
- The URL can be absolute or relative.
- If the originating application is a Java Servlet (JSP), then an absolute URL must be used. This is because QMI has to know the port number for accessing other servlets. If your web server is using virtual hosting and does not require the port number then a relative URL could be used.

QMI User Contact E-mail Name and Address

There are two (2) optional user contact email parameters.

1. Contact e-mail name value:

    - Parameter name: emailname
    - The parameter is not required; if the emailname and emailaddress parameters are not included then there will not be a "Contact" window available.
    - This parameter is only an input parameter.
    - The email parameter value is case insensitive.

2. Contact e-mail address value:

    - Parameter name: emailaddress
    - The parameter is not required; if the emailname and emailaddress parameters are not included then there will not be a "Contact" window available.
    - This parameter is only an input parameter.
    - The email parameter value is case insensitive.
    - The URL can be absolute or relative.
        - If the URL is absolute, then the complete URL including the transport protocol must be included. (http://www.dnr.state.ak.us/cgi-bin/lris/landrecords)
        - If the URL is relative it must begin with a forward slash (/).

If one of the two (2) email parameters is included, then both must be included else an error will be generated.

Graphical User Interface (GUI) Functionality Parameter

QMI can be initiated in three (3) modes, “Stand Alone”, “Point”, and “Full”. These modes give you different sets of options while using QMI.

3. Gui Functionality values:

- Parameter name: guifunct
- The parameter is not required; see below for default actions.
- This parameter is only an input parameter.
- There are three (3) acceptable choices for the guifunct parameter:
    1. “full” ➔ Full, all options are available.
    2. “sa” ➔ Stand Alone, all options except forwarding and returning are available.
    3. “point” ➔ Point, very limited options are available.
- The guifunct parameter value is case insensitive.

The “full” mode allows you to pass coordinates to QMI, display/edit the coordinates and pass the coordinates on to a “target” application.

The “sa” mode allows you to initiate QMI without passing it any parameters at all. You can plot points, lines or polygons on the map and print out the corresponding decimal and DMS coordinates.

The “point” mode allows you to initiate QMI from another web application and use QMI to pass a single point on to the target application. You cannot edit or plot any points, lines or polygons while in “point” mode.

All modes allow you to “Zoom In”, “Zoom Out” and “Pan/Recenter” the map.

If the “guifunct” parameter is not included, or is not recognized, when initiating QMI, there are two (2) possible successful actions and two possible error conditions.

1. If the targeturl and sourceurl parameters are both missing, then QMI will default to the “Stand Alone” mode.
2. If the targeturl and sourceurl parameters are both present, then QMI will default to the “Full” mode.
3. If one but not both of the targeturl and sourceurl parameters are missing, then QMI will generate an error.

Feature Definition Parameters

There are four (4) methods to pass a point, line or area to the QMI application for display. They are QMQ, MTR, decimal lat/long and/or decimal lat/long lists. Only one of these methods is needed. If more than one is used, then the most discrete datum will be utilized and the others will be ignored. The exception to this is if a "Point" and a "Poly" feature are supplied. This implies a polygonal feature with a centroid. The order of precedence is: decimal lat/long first then MTR and finally QMQ.

1. Decimal Latitude and Longitude values (Point feature):

- Two (2) parameters are required for point features:
    - Parameter name: ddlat
    - Parameter name: ddlong
- These parameters are both input and output parameters.
- These parameters are generally only used when a "Point" and a "Polygon" are being sent to QMI simultaneously.
- If only one parameter is supplied and MTR or QMQ are not available, then QMI will return an error.
- These values will be treated as North and West.
- A "Point" and a "Poly" feature imply a polygon with a centroid.
- If there are no "Point" or "Line/Poly" features then an MTR or QMQ must be supplied, else an error will be returned to the originating web application.

2. Decimal Latitude and Longitude values (Line or Poly feature):

- Two (2) comma delimited parameters are required for line or poly features:
    - Parameter name: ddlatlist
    - Parameter name: ddlonglist
- These parameters are both input and output parameters.
- If only one list or unbalanced lists are defined and MTR or QMQ are not available, QMI will return an error to the originating web application.
- These values will be treated as North and West.
- The number of elements must be the same in both lists.
- These parameters must consist of comma-delimited values (no spaces).
- There may be no more than ten (10) coordinate pairs, eleven (11) if the first and last pairs are identical, indicating a region.
- A "Point" and a "Poly" feature imply a polygon with a centroid.
- If the first and last coordinates are the same then the feature is assumed to be a polygon.
- If there are no "Point" or "Line/Poly" features then an MTR or QMQ must be supplied, else an error will be returned to the originating web application.

3. MTR (Meridian, Township, Range) value:

- Parameter name: mtr
- This parameter is both an input and output parameter.
- Most common formats for the MTR are acceptable. (f001N001w, 1n1Wf …)
- The MTR value is case insensitive.

4. QMQ (Quarter Million Quadrangle 1:250000) value:

- Parameter name: quad
- This parameter is both an input and output parameter.
- QMI will return an error on receipt of an invalid QMQ if a more discrete point, line or polygon is not supplied.
- The QMQ value is case insensitive.

Data Status Parameters

1. Display status indicates whether QMI has assembled and displayed an annotation layer with the supplied or edited data:

- Parameter name: display
- This parameter is a QMI output parameter only.
- Values for this parameter are: TRUE or FALSE
- The display value is UPPER CASE.
- This parameter will always be included in the output.

This parameter has been deprecated; the original application was not intended to be as dynamic as it turned out. The value will always be TRUE.

2. Error message is an informational string used for alerting the originating application that some QMI condition has been violated. QMI will direct the output to the "sourceurl" URL. If not available, QMI will direct the message to an error page.

- Parameter name: errormsg
- This parameter is a QMI output parameter only.
- The error message is case insensitive and URL encoded.
- This parameter will only be included in the output when some error condition exists.

Labeling/informational Parameters

1. Originating Application Web Page Return Link Text:

- Parameter name: linktext
- This parameter is a QMI input parameter only.
- Parameter length: Maximum of 25 characters (including spaces).
- This text constitutes the Web page label for the link that returns the user to the originating application.
- This parameter is optional. If it is missing a default text string will be displayed ("Return to Origin").
- This parameter is case insensitive and should be URL encoded.

2. Originating Application Custom Interface Pseudonym Label Text:

- Parameter name: labeltext
- This parameter is a QMI input parameter only.
- Parameter length: Maximum of 20 characters (including spaces).
- This text constitutes the Web page pseudonym for the QMI application. This allows QMI to appear an integral part of the client's application.
- This parameter is optional. If it is missing a default text string will be displayed ("Alaska DNR - GIS").
- This parameter is case insensitive and should be URL encoded.